DOCUMENT RESUME

ED 372 586 EC 303 219

AUTHOR Telander, James Eric
TITLE The Adjustment of Learning Disabled Adults: A Review of the Current Literature.
PUB DATE May 94
NOTE 75p.; Ph.D. Dissertation, Biola University.
PUB TYPE Dissertations/Theses - Doctoral Dissertations (041) -- Information Analyses (070)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Adaptive Behavior (of Disabled); *Adjustment (to Environment); Adults; Early Intervention; *Emotional Adjustment; Intervention; *Learning Disabilities; Needs Assessment; Social Adjustment; *Student Adjustment; *Vocational Adjustment

ABSTRACT

This paper reviews research relevant to the adjustment of adults with learning disabilities (LD) in the areas of academic, occupation/vocational, social, and personal/emotional functioning. After an introduction, methodological concerns are raised in the areas of sampling, definitions, experimental designs, and instrumentation. The review concludes that LD adults have increased difficulties in all areas of functioning. However, the literature also indicates that, with accommodation, intervention, and adaptation, the LD adult can demonstrate high levels of functioning. Although early intervention is suggested for maximizing later adaptive functioning, it is most commonly provided only in the academic area. While accommodations are seen to aid functioning in the workplace and at the postsecondary academic level, the lack of attention and remediation in the area of social and personal/emotional functioning is decried. (Contains 27 references.) (Author/DB)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 372 586

EC

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

THE ADJUSTMENT OF LEARNING DISABLED ADULTS: A REVIEW OF THE CURRENT LITERATURE

A Doctoral Research Paper

Presented to

the Faculty of the Rosemead School of Psychology

Biola University

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Psychology

---

by

James Eric Telander

May, 1994

EC 303219

PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Jame E. Telander
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

BEST COPY AVAILABLE

EC

THE ADJUSTMENT OF LEARNING DISABLED ADULTS: A REVIEW OF THE CURRENT LITERATURE

by

James Eric Telander

APPROVED:

William M. McQueen Jr., Ph.D. Date 4/15/94
First Reader

Date 4/15/94
Second Reader

APPROVED:

Dean

4/15/94
Date

Copyright © 1994 by James Eric Telander

ABSTRACT

THE ADJUSTMENT OF LEARNING DISABLED ADULTS:
A REVIEW OF THE CURRENT LITERATURE

by

James Eric Telander

Current research relevant to the adjustment of learning disabled (LD) adults in the areas of academic, occupational/vocational, social and personal/emotional functioning is reviewed and the methodology critiqued. The research suggests that LD adults have increased difficulties in all areas of functioning. However, with accommodation, intervention, and adaptation, the LD individual can demonstrate high levels of functioning. Although early intervention is suggested for maximizing later adaptive functioning, it is most commonly observed in the area of academics. While accommodations aid functioning in the workplace and at the postsecondary academic level, social and personal/emotional functioning receive little attention and remediation.

TABLE OF CONTENTS

PAGE

DOCTORAL RESEARCH PAPER

Introduction 1

Methodological Concerns 3

Sampling 3

Definitions 4

Experimental Design 7

Instrumentation 8

Learning Disabilities in Adulthood 9

Academic Adjustment 12

College 13

Graduate School 22

Vocational Adjustment 24

Adjustment 24

Success 30

Accommodations 37

Social Adjustment 42

Emotional Adjustment 53

Conclusions 63

REFERENCES 66

THE ADJUSTMENT OF LEARNING DISABLED ADULTS: A REVIEW OF THE CURRENT LITERATURE

Introduction

The purpose of this paper is threefold: (a) to review the recent research pertaining to the adjustment of the Learning Disabled (LD) adult with regard to the academic, vocational/occupational, social, and personal/emotional areas of functioning, (b) to better inform advocates of characteristic difficulties and advocacy issues of the LD adult, and (c) to review the abundance of empirical research produced in the last few years regarding the LD adult. In 1975 the 94th Congress passed the Education for All Handicapped Children Act also known as Public Law 94-142. This Act was the first of many moves aimed at improving the quality of education for disabled children. Before P.L. 94-142, public school districts across the nation largely ignored the needs of the disabled population providing few, if any, opportunities for special education. The purpose of the law was to improve and strengthen the quality and opportunities of education for disabled children. The act has undergone many changes and is known currently as the Individuals with Disabilities Education Act (IDEA).

Learning disabilities represent the most prevalent of the qualifying disabilities in the IDEA. It is amazing to consider that many learning disabled children had little or no special education before P.L. 94-142. Equally sobering is that while the special needs of these individuals do not end upon graduation from high school, the majority of their assistance does. The law

requires assistance be provided until an individual is 22 years old. Many of the persons originally targeted by this law are now adults. These individuals, attempting to transition from adolescence to adulthood, are still in need of help. Only in recent years has this population received some degree of attention. In 1984, with the passage of P.L. 101-476, federal consideration was finally given to helping the children of P.L. 94-142 make the transition into adulthood.

P.L. 101-476 was intended to facilitate the transition from high school (where there are comparatively few demands and many services available) to adult life (where there are many demands and relatively few services available). P.L. 101-476 mandated that public schools plan for the transitional services necessary to launch the LD individual into adulthood. The federal government decided that the Individualized Treatment Plan (IEP) meeting was the appropriate place for educational specialists, parents, and advocates to plan transitional services for all LD adolescents 16 years of age and older. The law states that the schools must plan for transitional services as well as rehabilitation counseling, if it is needed (White, 1992).

More time and space has been devoted to LD adults in the last few years than in the years immediately following P.L. 94-142 (Patton & Polloway, 1992). As a result, the current review focuses primarily on research after 1989. This critique is intended to identify the studies providing reliable information as well as to provide direction for future research. In the process of reviewing the research, several methodological considerations arose making interpretation of the results somewhat difficult. Items of concern included sampling, definitions, experimental design, and instrumentation.

Methodological Concerns

There are a number of ways in which researchers are currently studying the adjustment of LD adults. Populations vary, designs differ, as do definitions. This leaves a considerable amount of material to compile, compare, and interpret. In this section the subject sampling, definitions, experimental design, and instrumentation of the selected studies are critiqued with respect to the following review.

Sampling

The research reviewed addressed the successful functioning and adjustment of LD adults in the educational, vocational, social, and the personal/emotional realms. A large portion of the research was found to rely on samples taken from college populations or recent high school graduates. As a result, the young adult age group is over represented. This may be due to the availability of records from secondary schools and the relative ease of obtaining LD college research participants. The older LD adult population is more difficult to access because federal recognition of this population has only recently been established. Many transitions and a great deal of adjustment takes place during the young adult years for many individuals. Sampling this population includes some bias with regard to degree of adjustment. Problems arise when researchers attempt to generalize findings obtained with LD young adults and college students to the broader population of LD adults. Older LD individuals were not as likely to have been identified or treated for their disability during their academic years. This fact suggests that older LD individuals experienced a diminished potential for successful adjustment when compared to their younger counterparts.

Many of the LD samples included in the studies for this review were obtained through the records of academic institutions. However, as stated above, many older adults have never been evaluated for disabilities because such academic services were unavailable to them as children. Some older adults may be unaware of such disabilities attributing their problems to other causes. Adults identified as LD are either young (college age) or a self-selected, self-motivated, self-informed population. Older adults who have identified their disability are likely to have done so because of motivation to overcome the difficulties. As a result, high achieving LD adults and the severe end of the range of LDs are likely to be over represented.

Gerber, Ginsberg, and Reiff (1992) sampled a volunteer population obtained through referrals from different national organizations for LD individuals. Smith (1992) utilized a national LD publication through which LD adults volunteered to respond to the researcher's survey. These studies included self-selected samples and therefore, again, may not represent the adult LD population as a whole. While this makes broad generalization difficult, the older LD adult population is not easily accessed and random sampling is impossible at this time.

Definitions

Two descriptive terms frequently used in the studies reviewed are learning disabilities and success. The confounding problems caused by the various use of these terms will be addressed with regard to the possible impact on conclusions drawn from the studies.

Learning disabilities. To define learning disabilities, operational criteria must be established. While on the whole studies used similar criteria, there is some degree of variation which makes comparisons between

studies more difficult. It is frequently difficult to determine how a particular researcher isolated and defined a sample. In self-selected samples, individuals identified themselves as learning disabled, either based on their own unstated criteria or on their self-reported match to criteria listed by researchers. Disabilities are identified through a variety of terms, ranging from LD to specific LD to dyslexic to mildly mentally retarded. These labels vary with the types and degrees of disabilities, and criteria are not always clarified in the reports.

Although the federal government provides a definition for LD, its nature is not completely operationalized. Learning disabilities are defined as:

> a disability in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations. The term includes such conditions as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. The term does not apply to children who have learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage. (Federal Register, 1992, p. 44802)

The federal government attempts to operationalize this definition by giving the following criteria.

> (a) A team may determine that a child has a specific learning disability if—(1) The child does not achieve commensurate with his or her age and ability levels in one or more of the areas listed in paragraph (a) (2) of this section, when provided with learning experiences appropriate for the child's age and ability levels; and (2) The team finds that a child has a severe discrepancy between achievement and intellectual ability in one or more of the following areas—(i) Oral expression; (ii) Listening comprehension; (iii) Written expression; (iv) Basic reading skill; (v) Reading comprehension; (vi) Mathematics calculation; or (vii) Mathematics reasoning.

> (b) The team may not identify a child as having a specific learning disability if the severe discrepancy between ability and achievement is primarily the result of—(1) A visual, hearing, or motor impairment; (2) Mental retardation; (3) Emotional disturbance; or (4) Environmental, cultural or economic disadvantage. (Federal Register, 1992, p. 44823)

The problem with this definition is that it does not operationalize "a severe discrepancy between achievement and intellectual ability" and "commensurate achievement with his or her age and ability" is not clearly delineated.

Criteria for determining a severe discrepancy in each of the areas listed above vary from study to study, institution to institution, and state to state. Difficulties exist in comparing studies because of the various types and degrees of disabilities. Researchers also have difficulty identifying their target population because of such variation. Most researchers included some evaluation procedure to determine if participants met the criteria. However, a number of studies relied on school records, outside agencies, or the individual to make the diagnosis. The existing multiplicity of criteria used across time and across agencies threatens external validity of most of the research. However, operationalization of standard diagnostic criteria is becoming more prevalent. Future research is expected to improve in this aspect of methodology.

Success. The definition of success, while not included in every study, varied among studies and needs clarification. Because learning disabilities vary in severity, what constitutes success for one individual may not for another. Sitlington and Frank (1990) initially defined success as involving employment, appropriate social and interpersonal interaction, financial security, and appropriate living arrangements. When the researchers set standards commonly achieved by most individuals in the age group of their

sample, they found only a very small percentage of their sample (4%) were successful. Therefore, the authors changed their criteria for success, which enabled more of their sample to meet it. It is important that the reader realize that in this review the definition of success is relative and is likely to vary between studies.

Experimental Design

The experimental design underlying a given study must be understood before generalization of the results can be made. This section comments on the types of designs used and suggests possible means of strengthening them.

Many of the studies dealing with the adjustment of LD adults are descriptive in nature. These studies collected data to test different hypotheses and describe the current standing of the sample being studied. However, such designs do not address cause and effect relationships. The comparative studies obtained for this review tended to be cross-sectional or basic comparison designs. Information and data are typically obtained at one point in time during the study. Cross-sectional designs do not offer predictive information and only address the adjustment of LD individuals at a specific time in life. Several studies were retrospective with conclusions being drawn from the data collected. While this type of design does not address predictive information regarding adjustment, a great degree of information can still be obtained.

Longitudinal studies might enable one to determine the nature of adjustment attained over the course of a lifetime. Such studies are very pertinent to the study of adjustment or coping for LD individuals over time.

However, these studies are very expensive and difficult to implement due to attrition.

Without a control group it is difficult to differentiate the characteristics specific to the LD population. Some studies compared their results to normative data or national census statistics. However, these studies fail to take into account the differences between communities. Occasionally the reverse was true: A study would take into consideration the dynamics of a particular community but did not consider the population as a whole. It is necessary to obtain a control group of the population to which one wishes to compare or generalize. In the future more attention to control group comparisons will strengthen the interpretations of research results.

Instrumentation

A large portion of the literature reviewed was heavily dependent upon responses to surveys and questionnaires. This self-report style of measurement has the potential to reflect the bias of the respondents. For example, Smith (1992) not only used a self-selected sample but also used a questionnaire as a means of obtaining data. Those LD individuals who responded to the questionnaire were asked how informed they were regarding rehabilitation services. The problem was that those who chose to respond may have had more time and may have been in greater need of services, biasing their response. While this is problematic, it is somewhat mitigated by the fact that obtaining a sample of older LD individuals is very difficult. Frequently the only means of obtaining information about their adjustment is through the use of such measures. Research on adult adjustment in this population is still new. Standardized instruments have not been constructed to answer the most pressing questions.

Learning Disabilities in Adulthood

In the 1976-77 school year, the U.S. Department of Education reported that approximately 25% of disabled children served under IDEA were classified with specific learning disabilities. In the 1990-91 school year, this number increased to over 50% (cited in Hallahan and Kauffman, 1994). This may indicate that the number of LD children is increasing. However, in comparison to other handicaps, LD diagnoses are becoming more socially acceptable and readily identified. This trend also appears to be true for adults, which may be why the number of adults placed in LD categories is also increasing. This increase is likely to be the result of improved identification practices, increased awareness by the general public, as well as increased social acceptance.

From a developmental perspective, graduating from high school or turning 21 years old does not automatically mean one has crossed the bridge into adulthood. Neither does a learning disability become completely remediated upon high school graduation. Rather, one must take the necessary steps to achieve academic, vocational, social, and personal competence. These skills tend to develop naturally in most young adults. However, LD adults are likely to have increased difficulty making the adjustment to adulthood because of their handicap.

Malcolm, Polatajko, and Simons (1990) compiled descriptive information on the histories, self-perceptions, and needs of LD adults. Their questionnaire was administered to volunteer individuals ($\underline{N}$ = 80, avg. age = 29.4, $\underline{SD}$ = 8.79) with a history of academic problems (75% reporting problems during K-Grade 6) and suspected of being LD. The volunteers demonstrated

"observable discrepancies" between potential and current performance and were asked to answer questions designed to assess their perceived needs.

Malcolm et al. (1990) cited language-based difficulties (e.g., reading, writing, or basic understanding) as the most frequent cause of academic difficulty for LD adults. The typical LD adult was described as male, between the ages of 21 and 40, with a history of early academic difficulties. It was also typical for these individuals to have communication and organizational skill deficits. Over 58% of the sample required grade repetition, and 82% reported diagnosis of their disability before graduating from high school. Malcolm et al. also reported that these disabilities continued to caused problems for postsecondary education as well as for occupational, social, and personal issues (e.g., independent living) in later adulthood. The researchers indicated that some functional problems faced by the LD adult are similar to problems of non-learning-disabled individuals. What distinguishes the problems for the disabled adult is their persistence, complexity, and encompassing nature.

Hoffmann et al. (1987) surveyed LD adults (n = 381), service providers (n = 948), and parents or advocates (n = 212) working with LD adults. The study indicated that 63% of the LD adults had graduated from high school or obtained the equivalency degree. Of those graduating from high school, only 12% attended college, with 92% needing some type of specialized educational services (e.g., resource tutoring, remedial reading). Again, the most significant learning problems reported were language-based (e.g., reading and spelling). The researchers indicated that these disabilities were found to cause the most problems in the vocational rehabilitation setting. Arithmetic difficulties were reported by 47% of the LD adults, and writing difficulties by

41%. Service providers (64%) and advocates (54%) reported language-based problems as most frequent for their LD clients, and these problems typically caused difficulty in the work place.

Hoffmann et al. (1987) reported that reading problems interfered most frequently with employment. LD adults, service providers, and consumers reported memory problems as being the most significant cognitive processing problem. The study also inquired whether LD adults needed and wanted help with their learning disability. All admitted that they wanted and needed help with talking and thinking. A large majority (72%-88%) wanted help with problems such as reading, writing, spelling, listening, and arithmetic; 62% wanted to better understand their learning problems through further testing. This stands out because 68% had reported already having some degree of understanding of their disability. Apparently, LD adults are somewhat familiar with their problems, but still desire to know more.

The above studies indicate that adults with learning disabilities perceive the problems associated with their disability as continuing throughout their lifetime or at least into adulthood. Gerber et al. (1990) sampled 133 LD individuals and found that many learning disabilities continue into adulthood. A significant number of LD adults actually believed that their disability worsens ($p < .001$). These researchers sampled a diverse population with an age range of 23 - 71 years and a geographic diversity of 23 states. Subjects had IQs within normal limits and were divided into two groups: highly successful and moderately successful. The study investigated learning disabilities by examining the relationship of the disabilities experienced in adulthood with the experience during school age

years. Through this comparison, the researchers hoped to identify areas in which difficulties persisted.

The researchers found that a number of individuals (8% - 55%) saw their disabilities as remaining stable. However, after further analysis of items pertaining to the perceived severity of problems, all tests proved to be significant ($p < .001$, chi square ranged from 14.0 to 30.3). While LD individuals believed that their disability remained stable, each time they noted a change in the condition of the disability, a significant number noted that the severity of the problem worsened after graduation.

Collectively, these studies indicate that problems associated with learning disabilities span the lifetime of an individual, and the problems experienced during elementary school are likely to be the same problems faced by the individual in adult life. While it has been demonstrated that disabilities can continue into adulthood, this paper will also show that the complexity and encompassing nature of the learning disabilities may affect the academic, occupational/vocational, social, and personal realms of adjustment to adulthood.

Academic Adjustment

When traditional education ends, the LD individual makes a decision for or against postsecondary education. There proves to be a unique set of hurdles for the LD individual who is bound for college. Malcolm et al. (1990) reported that 72.5 % of the subjects in their study had some form of higher education or job training. While this seems to be a considerable number, it is interesting to note that only 32.5% of these subjects had actually enrolled in courses and an additional 28.8% reported that their education was only

through job experience. No information was reported on the number of individuals who obtained degrees at the postsecondary level. It would have been interesting to see how many of the 32.5% had actually persevered through college and on to graduate school.

College

Vogel and Adelman (1992) studied the educational success of learning disabled college students (n = 62) in comparison to peers (n = 58) matched on gender and the composite score on a college entrance exam. The difference between the matched peers was not significant, $F(1, 116) = 1.52$, $p > .05$, so the samples were therefore considered to be effectively matched. Each subject was required to take a reading comprehension test, give a writing sample, and take a measure of knowledge for sentence structure. Although the control group's performance on the college entrance exam was similar to the LD sample's, they displayed significantly better reading ($p < .001$) and written language abilities ($p < .001$ for sentence structure, $p < .01$ for writing sample) as measured by the tests.

Vogel and Adelman (1992) drew conclusions about the differences seen between LD subjects and their matched peers, although there was some question as to whether this study best represents a sample of scholastically comparable students. LD students may score low on college entrance exams due to their disability, while the matched peers may score low due to problems such as low intellectual ability. While significant differences existed between the subject groups for reading, writing, and knowledge of sentence structure, the reason for no significant difference on the college entrance exam may be due to something as significant as different IQ levels. The researchers made little effort to describe the non-LD group. At the end

of the report the researchers did identify the non-LD group as a group at risk for academic difficulties. It is uncertain as to why this group had academic difficulties and how these may affect the interpretation of results.

Vogel and Adelman (1992) found that the number of high school English courses taken was the only predictor of successful college graduation for the LD student. They found a significant correlation between the number of high school English courses taken and the college exit grade point average (GPA) for the LD individual ($r = .46$, $p < .001$). This was not true for the non-LD peers. The non-LD peers, as well as the LD students, demonstrated that high school GPAs were not found to be a significant predictor of successful college graduation. Matched peers' and LD students' high school GPAs neared significant levels but did not correlate with their college exit GPA.

Vogel and Adelman (1992) found in their sample that successful students tended to have prior college experience. This was true for both the LD students and the non-LD students. Of the students who failed, 100% of them had no prior college experience. The researchers suggested that prior college experience or exposure to the stress of the college can help the LD student, as well as other groups at risk, know what to expect. Having firsthand knowledge of the demands of college life, the competitive atmosphere, the recognition of how the disability affects functioning, and knowledge of how to utilize the services and accommodations available improves the likelihood for success of the LD student. Persistence after failure thus appeared valuable to these students.

The researchers also found that success for the LD student was in part related to taking a significantly lighter course load than the non-LD peers ($p < .002$). Vogel and Adelman (1992) described the mean GPA for LD students

as slightly higher than their matched peers and attributed this to LD students receiving comparatively fewer failing grades. In conjunction with taking a lighter course load, successful grades were attributed to LD students taking significantly greater number of courses graded on a pass/fail basis ($p < .0001$). Vogel and Adelman (1992) posited that the LD sample was required to take several developmental English courses offered only on a pass/fail basis, which beneficially increased the number of passing grades.

Finally, Vogel and Adelman (1992) concluded while there was no significant difference between the LD students and non-LD peers in the graduation rate, the academic failure rate for the matched non-LD peers was three times higher. They suggest that this was due to the success of the different strategies being used to identify and assist the LD student in the academic setting. The researchers hoped that by identifying the means of academic success in LD college students, similar processes can be used to help other students who are at risk.

While Vogel and Adelman (1992) made several comparisons to non-LD peers, the significance came not in the comparisons but in identifying success factors in the LD student. The researchers identified prior college experience and additional high school English courses as increasing the odds that LD students will successfully adjust to the college environment. The researchers recommended that LD students take lighter course loads to increase the likelihood of successful adjustment and eventual graduation. While taking a lighter course load may add to the length of time to graduation, this additional time allowed LD students to utilize the services available and maximize the potential for success.

The services available to aid LD students in academic settings were addressed by McGuire, Hall, and Litt (1991). Their descriptive study investigated the instructional needs of LD college students ($\underline{N}$ = 40). The subjects were identified as LD prior to entering college or during college by a team of professionals. The researchers explored the focus of instruction provided by trained learning specialists for LD students. The analysis included the type of instruction most commonly received by LD students as well as the helping strategies most frequently needed.

The researchers found that a majority (60%) of instructional time requested by LD students was focused on study strategies and written expression. Every LD student expressed, to some degree, a need for help with study skills. The learning specialists reported that an additional 23% of their time was used to aid LD students in becoming better advocates for themselves.

McGuire et al. (1991) further investigated the four instructional objectives which accounted for 84.8% of all instructional time. These areas were study strategies (35.8%), written expression (25.8%), counseling (15.2%), and self-advocacy (8%). Study skills consisted of test taking preparation, specific study strategies, and developing time management skills. Written expression focused primarily on organizational needs and proofreading, with some time being spent on helping LD students develop word processing skills. The majority of counseling pertained to academic needs (70%) with 27% being for personal or other counseling needs.

The objective of self-advocacy was fairly balanced in that relatively equal amounts of time were spent helping the LD student recognize strengths and weaknesses (28%), improve faculty interactions (28%), make

better accommodations (21%), and improve self-monitoring (19%). The researchers concluded that because the majority of needs expressed by LD students pertained to study strategies and written expression, there was an increased likelihood that high school teaching focuses on content rather than developing various strategies for learning.

It is critical for LD students to develop study skills and skills of written expression prior to entering college. The conclusions drawn by the researchers appear to be logical. However, it is difficult to generalize the conclusions made by McGuire et al. (1991). One must consider that their sample consisted of one group of students in one university setting. All their subjects were receiving services from the same learning specialists. In order to generalize the conclusions, additional studies need to be done in a variety of settings with a variety of learning specialists working with LD students over a period of time. Specialty skills being taught to LD students may vary from institution to institution as well as from specialist to specialist. Even though there are laws that mandate that schools provide services to disabled students, there is a wide variety of programs and services being offered. In addition, learning needs may change over a period of time and this study did not address such changes.

Bursuck, Rose, Cowen, and Yahaya (1989) did a nationwide survey of the services provided by colleges, universities, and community colleges ($\underline{N}$ = 197) for LD students. What they found is that a large majority (90% or more) of the institutions hold to the general requirements of the federal law in providing LD students with equal access (e.g., taped textbooks, taped lectures, note takers and modified exam procedures). The federal government mandated equal rights for disabled individuals in the law described in

Section 504, Subpart A, of the Rehabilitation Act of 1973. This act included learning disabilities and mandates that LD students cannot be discriminated against if the program is supported by the federal government.

A large percentage of the schools provided other specialized services which are not mandated by the law (e.g., academic advisement [93%], tutoring [94%], counseling [97%], advocacy [86%], and study skills [86%]). As many as 41% of the schools provided individualized education plans (IEP) for their LD students. Some schools made services for the remediation of learning disabilities a priority, however, these varied among disabilities. More schools provided remediation services for disabilities such as written language (82%), math (78%), and study skills (86%); fewer provided remedial instruction for social skills (56%) and oral language (36%). Only 30% to 40% of the schools offered credit to LD students for remedial course work done in reading, math, and written language.

Schools also varied on the importance of their service goals. The majority ranked basic compliance with the law (55%) as the most important goal, while teaching the development of compensatory learning strategies was viewed as most important by 34% of the institutions. Basic skill remediation was viewed as the most important service goal by the fewest number (13%). Bursuck et al. (1989) compared these schools and found that those who rated basic compliance with the law as most important were less likely to use IEPs ($p < .001$), monitor student progress ($p < .01$), or provide tutoring with LD specialists ($p < .001$). These schools were less likely to hire LD specialists to instruct LD students in math ($p < .01$), and social skills ($p < .01$). They were also less likely to provide group training for social skills ($p < .01$). Schools that rated the development of compensatory skills as being

most important were significantly more likely to provide staff advocates for their LD students ($p < .01$).

Bursuck et al. (1989) also compared the size of the institution and the degree offered by the school with the services provided. They found that smaller schools provided significantly more one-to-one tutoring ($p < .001$), as well as group tutoring ($p < .01$), which was provided by general educators as opposed to peers. Many schools, large and small, offer tutoring from fellow students. Small schools were also more likely (81% vs. 65%) than the larger institutions, to provide remediation for mathematics. Schools providing an Associates, or 2-year degree, were significantly more likely to use IEPs with their LD students than were 4-year colleges ($p < .001$). They also offered significantly more courses for remediation in reading ($p < .001$), written language ($p < .01$), and mathematics ($p < .01$).

It is apparent from the data listed above that smaller colleges and schools offering associates degrees were more likely to personalize services for the LD student. Two year colleges help to prepare high risk students for the demand and challenges presented by 4-year colleges and universities. These schools were significantly more likely to provide services, hire specialists, have IEPs, monitor student progress, and provide tutors than the larger schools. These services are likely to be extremely beneficial to LD students entering college for the first time.

Houck, Asselin, Troutman, and Arrington (1992) studied the perceptions of the faculty ($n = 109$), non-LD students ($n = 194$), and LD students ($n = 46$) with regard to the accommodations made for LD students. The researchers addressed the suggestions and concerns expressed about LD students in the university setting. Structured telephone interviews were

made, with each interview containing seven items being asked of all three groups and five additional items being asked of the faculty and LD students. In addition, there were several group specific questions and several unstructured questions that addressed concerns and suggestions.

Houck et al. (1992) found that a significant number of faculty ($p < .05$) believed LD students would be limited in the selection of a major. Non-LD students were more frequently uncertain about the limiting nature of disabilities on the selection of a major, and LD students were uncertain as to whether they could chose any major they wanted. They believed more strongly than faculty and non-LD students that they could complete a degree program at a university ($p < .05$). LD students do graduate from college, however, this process is not an easy task and frequently requires help as well as accommodations for the disability.

The researchers identified a significant difference between the LD student's and non-LD student's perception of fairness for special course-related accommodations made for the LD student ($p < .05$). The LD students tended to believe that such accommodations were fair, while their non-disabled peers were uncertain of the fairness. This indicated that non-LD students viewed the special treatment of LD students as a confusing matter and some viewed the practice as biased against them. LD and non-LD students perceived faculty as less willing while faculty perceived themselves as significantly more willing to make accommodations (e.g., note takers, taped lectures, alternate or extra credit assignments) for LD students ($p < .05$).

It is interesting to note that 94% of the faculty interviewed expressed concern for the instruction of the LD student. The most frequent concern ($n = 22$) was simply being unaware of LD students in their classroom. They also

expressed concern (n = 16) regarding the fairness of the accommodations made for LD students. Solutions were offered by 91% of the faculty, with the most common (n = 52) being that the student should make their instructor aware of their disability. A considerable number of the faculty also suggested that students seek help through the university (n = 20) and choose courses and majors with care (n = 5).

The majority of LD students expressed their concern as being the university environment (76%). LD students were concerned that others would not understand the dynamics of the disability, nor the different problems they had to face (n = 6). A number of them expressed fear that their peers would not understand the need for special accommodations in the classroom (n = 5) and that the faculty would not make such accommodations if requested (n = 3). Additional concerns included study time, faculty awareness of LD, faculty bias, and class size. LD students rated tutors (n = 11) and the Office of Disabled Student Services (n = 12) as being the most valuable support system at the university. Other important services were extra time on tests, counseling, note takers, and study skills support.

Of the non-disabled students, 67% expressed concern for LD student enrollment. The greatest concern had to do with fair and nondiscriminatory treatment, fearing that the LD student would receive preferential treatment putting them at a disadvantage. Suggestions were offered by 80% of the non-LD students with their most frequent suggestion being that LD students ought to seek help and make use of the available resources (n = 49). Additionally, they felt that LD students should notify professors and make a concerted effort to do their best (n = 63).

Graduate School

LD students who finish college and aim to continue their education at the graduate level will once again be faced with the challenge of obtaining accommodating and support services. Even though services are mandated under Section 504, the number of LD students who attain the graduate level are few, thus leaving graduate programs less accountable for the services they provide. Parks, Antonoff, Drake, Skiba, and Soberman (1987) conducted a survey of the programs and services provided for learning disabled students at the graduate and professional school level (N = 223). The types of institutions surveyed were dental, law, medical, and graduate schools.

Of the programs surveyed, the researchers found that only 24.2% had some sort of written plan for dealing with disabled students. Those that had plans, clarified that the plans typically dealt with physical handicaps and not learning disabilities. This indicates that fewer than 24% of graduate and professional schools plan to make accommodations for LD students. In addition, only 14.3% indicated that they intended to make such plans within the next two years. Graduate and professional schools typically do not have programming for LD students. Many schools (81.6%) had no plan established for the newly entering LD students, with only 4.5% planning to develop one.

While relatively few graduate programs offer services or work with LD students, there are some schools that offer selected services. Parks et al. (1987) found that 46.2% of graduate or professional programs offer, or coordinate some sort of support program for individuals who discover a LD while attending a graduate program. Most programs (80%) offer such support services at no cost to the student. For students suspected of being LD, 52.5% of the schools made diagnostic evaluations available, although a

number of these evaluations were done by agencies outside the institution (39.9%).

Some schools expressed a willingness to make accommodations for the LD student (e.g., extra time for exams [65%], oral exams [56.1%], taped test responses [42.2%], and extending the length of the program [51.1%]). However, one must consider that more than 10.3% of the schools were unwilling to make any accommodation for LD students. It is possible that some of the schools believed that a learning disability would negatively impact the quality of professionals they train.

For example, a medical school might find it hard to make accommodations for LD students because of the potential danger to the lives of others. If a student were to misread or miswrite a prescription, a person's health could be in danger. However, as in many graduate programs, the study found that accommodations to LD students are being made and the quality of training has not been affected. The majority of schools offer tutoring (65%) as well as many other services (e.g., exam taking skills [49.8%], exam preparation [46.2%], note taking skills [46.6%], use of library [51.6%], and development of writing skills [48.9%]).

Some graduate or professional schools make an effort to comply with Section 504 of the Rehabilitation Act. However, Parks et al. (1987) concluded that the services for LD graduate students are greatly lacking. The majority of the schools have a limited written plan dealing in general with handicapped individuals. Little provision and consideration is given to the LD student. It is astonishing to consider the percentage (10%) of schools who admitted to an unwillingness to make simple accommodations such as allowing the LD student more time on an exam. This apparent disregard for Section 504 has

led the researchers to conclude that some LD students at the graduate or professional level are likely to have good reason to bring about litigation or a class action suit if they are concerned about unfair treatment.

While it takes more than just trying hard to increase the odds of the LD student's chance of making it through a postsecondary or graduate setting, the research appears to indicate that there are resources available, at least at the postsecondary level. Graduate students, however, appear to have a much greater struggle ahead of them.

Vocational Adjustment

Establishing a vocation typically follows graduation from school, whether high school, college, or vocational training. The research pertaining to LD individuals and vocation/occupation primarily included samples involving recent high school graduates. This population is fairly easily obtained and consists of individuals adjusting to entering the work force. For LD individuals, adapting to the work force may be more difficult due to their disabilities; accommodations are frequently needed. Adjustment to the decreasing amount of assistance is also likely to be needed. Even though learning disabilities persist throughout adulthood, assistance for dealing with them is available primarily during childhood. This is reflected in the lack of current research on the vocational/occupational adjustment and success of older LD individuals.

Adjustment

A number of the articles reviewed presented similar descriptive analyses of the LD adult's adjustment to the vocational setting (Haring & Lovett, 1990; Scuccimarra & Speece, 1990; Sitlington & Frank, 1990;

Sitlington, Frank, & Carson, 1992; Smith, 1992). These studies included samples from 62 to 911 participants, most frequently recruited from recent high school graduates. Individuals were typically single and living with parents or family. The statistics varied slightly for studies dealing with the older populations, however, the trend persisted.

Sitlington and Frank (1990) as well as Sitlington, Frank, and Carson (1992) studied one year post high school graduates from the Iowa Special Education program. They interviewed a random sampling of the 1985 and 1986 graduating classes, one year after graduation. Sitlington and Frank (1990) restricted their study to LD students (N = 737) who, during high school, had received resource assistance consisting of 30 minutes of specific additional help each day. Sitlington et al. (1992) included the population used by Sitlington and Frank (1990) as well as students with more severe disabilities (N = 911). Their sample included LD students who needed special help during high school through the use of a special education classroom. Some of their sample required occasional use and others were completely schooled in a special education classroom. The researchers found that after graduation, 90% to 93.1% of their samples were single and as many as 62% to 64% still lived with a parent, family, or guardian.

In comparison across handicap severity, Sitlington et al. (1992) found those more severely handicapped individuals were 7.7% more likely to be single than their less handicapped peers. A larger number of the severely handicapped (18%) were more likely to live with family than their lesser disabled peers. Of the total sample, 77% considered themselves employed on a full or part-time basis while only 6.5% of the population obtained further education or job training.

Sitlington and Frank (1990) also found that 77% of LD students were currently employed competitively on a full or part-time basis. As many as 12% were unemployed or placed in non-competitive sheltered workshops. The unemployment rate for all Iowa graduates was 4%; 11% for vocational graduates. This suggests a higher rate of unemployment for the community's LD population. Of employed LD individuals, 50% had low status jobs, such as laborers or service workers, and 54% of the sample had no postsecondary education or training of any kind. Only 5% were attempting to obtain a Bachelor's degree (BA), with less than 22% attending programs at a community college. In the general population, 62% of the same group were actively seeking some sort of postsecondary education.

Sitlington and Frank (1990) compared male and female LD individuals and found that 27% of the women lived independently, while only 18% of the men did so. However, LD men earned a significantly higher wage ($p < .001$) than did the women and were employed significantly more often on a full-time basis ($p < .001$). Women were more frequently employed below full-time but greater than half-time. Sitlington et al. (1992) found that 81% of the male sample were employed, while only 61% of women had employment. They also found that significantly more women than similarly disabled men were unemployed regardless of mild ($p < .0001$) or moderate ($p < .02$) severity. Significantly more individuals with mild ($p < .0002$) and moderate ($p < .03$) disabilities who had employment during high school were more likely to be employed.

In exploring how LD individuals obtained employment, Sitlington and Frank (1990) found that 85% obtained employment by their own means or with the help of family and friends. Only 10% of this population used

resources available through the school or community. They also found that LD individuals who had employment during high school were significantly more likely to be competitively employed at the time of the interview ($p < .001$). For those who had jobs during high school, 87% were currently employed competitively, while only 71% of those who had not been competitively employed during high school were employed at the time of the interview.

In an attempt to define successful employment, Sitlington and Frank (1990) and Sitlington et al. (1992) first used the criteria of (a) being employed (full or part-time) in a competitive job, being a homemaker, full-time student, or in job training, (b) buying a home, living independently, or with a friend, (c) paying a portion of living expenses, and (d) in at least three leisure activities. When defined this way, Sitlington and Frank (1990) found that only 4% of LD men and 10% of LD women met the criteria. With the same definition, Sitlington et al. (1992) found that 31 individuals with mild LD handicaps, 1 individual with moderate LD handicap, and 1 with a more severe LD handicap (out of 911 individuals) met the criteria. This represented only 4% of their entire sample.

Therefore the definition was changed for both studies to include individuals living with parents, paying no living expenses, and being involved in as few as one leisure activity. Sitlington and Frank (1990) found that this increased the percentage of those seen as successful to 65%, for both men and women. With a more lenient definition of success, Sitlington et al. (1992) found that 54% of the sample was judged as successful. A greater number of mildly disabled individuals were seen to be more successful. The researchers concluded that the greater the disability the more likely LD

individuals will experience difficulties in successfully adjusting to the work force.

Researchers have concluded that the foundation for vocational work begins at the elementary level and is built throughout the school years. The importance of providing consistent help and support throughout the lifetime of LD individuals is stressed so that they will better develop employment and career interests. Included in this are assistance with developing skills of self-advocacy, becoming better acquainted with service providers, and better understanding the options of the interpersonal world. The LD adult is likely to benefit from continued support beyond the initial vocational adjustment immediately following high school. However, the statistics may vary depending on the population sampled.

Scuccimarra and Speece (1990) did a descriptive study of young adults with mild learning disabilities ($\underline{N}$ = 62). Through interviews they found that 78.5% of the sample was employed with 80% of the employment being in full-time, unsubsidized positions. The unemployed LD individuals totaled 21.5%, although 9.2% of these were not considered a part of the labor force (i.e., homemakers, students). Therefore, the unemployment rate was 12.3%, which was considerably more than the local unemployment rate of 6.7% for individuals in a similar age group (18 - 24 years old). In the total sample of men 90.9% were employed, while only 52.4% of the women were employed. Over 92% of those employed were in unskilled or semi-skilled capacities, with 7.8% being employed in a skilled capacity.

The researchers demonstrated that the majority of employed individuals (64.7%) earned between $3.36 and $5 an hour. However, 25% of the working LD male population earned above $5 an hour while only 9.1%

of the working LD female population earned a comparable wage. They also found that 90.2% of those employed were satisfied or very satisfied with their current job. A considerable number (84.6%) felt somewhat well prepared by the high school program for entry into the job market. Of those unemployed, 78.6% felt between somewhat to well satisfied with the job preparation they had received in high school, while 86.3% of those employed were satisfied with their preparation.

Scuccimarra and Speece (1990) also explored prior work experience and training of LD individuals and found that 72% had at least one summer job during high school, and 60% reported having no course work after completing high school. Most (81.5%) used family, friends, or their own initiative to obtain employment. Some of the LD individuals received job training (16.9%), while 7.7% had some private assistance training by an agency. Only 6.2% reported training coming from a community college with 4.6% receiving training through some sort of apprenticeship. Vocational rehabilitation or night school was reported by very few (3.1%).

Similar descriptive findings were made in a study by Haring and Lovett (1990). Using a similar sampling of recent high school graduates, they found that more male LD individuals (75%) than females (48%) were employed, and 59% of these were employed in competitive jobs. The researchers found that only 27% had postsecondary training. Job satisfaction was also reported in this study, and 87% reported being happy with their job. While 52% reported being in the same job for over a year, 89% of those employed reported never having received a raise. This study found that only 48% used family, friends, or their own initiative to obtain employment, and 50% used the assistance of public school staff or service agencies. The

researchers reported that the longer LD individuals were out of school the more likely they were to be employed. They demonstrated this through their finding that 68% of the 1984 LD graduates in their study were employed while 75% of the 1983 LD graduates were employed.

On the whole, the descriptive studies reviewed tended to show that the more severe the handicaps, the greater the difficulty in adapting to the work force. Compared to the norm, one is likely to see relatively higher unemployment among the LD population, with more men than women being employed. It is also likely that men will receive a higher wage. While a considerable amount of job satisfaction appears to be expressed, the majority of jobs are likely to be in the field of laborers or service workers, with more women being service workers. One encouraging trend shown by Scuccimarra and Speece (1990) was that the longer LD individuals are out of school the higher the probability of employment.

Success

Several studies explored the factors relating to success for LD individuals in the work force. Siegel and Gaylord-Ross (1991) related job success with four different independent variables. They addressed how well matched LD individuals (N = 41) were to their particular job and if the job was less than ideal, were accommodations made by the individual or employer. They also looked at the level of acceptance and social support felt by LD individuals. The study investigated the level of success related to the LD individual's rationalization for work and work ethic. Here the researchers explored the LD individual's ability to look at work as being more beneficial than simply a means of obtaining money. Lastly, the study

explored the level of success as it related to the degree of special service needed by the LD individual to obtain and retain a job.

Siegel and Gaylord-Ross (1991) used an aggregate measure obtained by summing the values on their independent variables. They found that individuals scoring higher on job match and accommodation, job acceptance and support, rationalization and work ethic showed significantly higher levels of success in the work place ($p < .05$). These individuals also received fewer special services or incentives for job retention. Independently, job match and accommodation was the only significant variable ($p < .05$) predictive of success. This indicated that the better matched individuals were to a particular job and the willingness that they or their employer demonstrated to accommodate their disability, the more likely they were to demonstrate successful performance.

With job match and accommodation being a significant predictor of success, the researchers explored whether there was any correlation with the other independent variables. They found significant correlations with social acceptance and support in the work place ($p < .01$) as well as with the individual's work rationalization and work ethic ($p < .01$). This indicated that those who felt social acceptance and support as well as demonstrating a stronger work ethic were likely to believe that they were better matched to their job. They were also likely to see their job as something to which they could accommodate, or would accommodate to them.

One trend that the researchers discussed was that LD individuals rated as more successful and better adjusted had actually been rated lower on their level of job match and accommodation. LD individuals who had been rated as less successful were rated as having a better mean level of job match. The

researchers concluded that frequent job changes in the years immediately following high school may lead to better vocational adjustment. It may be that career exploration leads to a healthier level of adjustment in the work force and helps LD individuals find a job that matches well or will accommodate. The special needs of the LD individual makes job match and accommodation crucially important for occupation/vocation decisions.

Fourqurean, Meisgeier, Swank, and Williams (1991) investigated recent high school graduates (N = 123) with regard to the different variables predicting postsecondary employment success. They used employment stability and status as a measure of employment success. The sample consisted of LD individuals from four different schools in a southern city over a four year period. They found that 86% of their sample were employed with 25% of these being employed on a part-time basis. The most common jobs were in the services or laborer fields.

The researchers used six predictor variables and two criterion variables in an attempt to determine relative efficiency in predicting postsecondary employment success. The predictor variables were (a) verbal IQ, (b) math ability, (c) high school employment, (d) high school vocational training, (e) high school absences, and (f) parent participation. Control variables were graduation, gender, and the number of months since exiting high school. The criterion variables were employment stability and status. Using all six predictor variables and the three control variables to compute employment success, Fourqurean et al. (1991) were able to account for nearly a third of the variance (R^2 = .32, p < .001).

In exploring the predictive nature of the cognitive variables on employment stability they found that while verbal IQ did not significantly

affect the predictability of the model, if math ability was deleted from the model there was a significant decrease in the predictability (R^2 = .08; F[1, 113] = 13.33; $p < .05$). It was similarly true for the vocational training variables in that a significant decrease in predictability was noted when high school employment was omitted from the model (R^2 = .05; F[1, 113] = 8.33; $p < .01$), but not when vocational training was omitted. Parent participation was also something that significantly added to the predictability of the model (R^2 = .03; F[1, 113] = 5.33; $p < .05$) whereas the number of high school absences did not significantly detract from the predictability if removed from the model.

In predicting employment status (i.e., unemployed, unskilled labor, skilled labor) the researchers found that the model as a whole yielded one significant discriminant function with a canonical correlation of .43 ($p < .01$). This demonstrated that the model aided in predicting employment status. Of the variables in the model, only math ability ($p < .05$) and parent participation ($p < .05$) were found to significantly add to the differentiation of job status.

Fourqurean et al. (1991) correlated the control variables of gender, time since exiting high school, and the ways in which LD individuals left high school with the predictive model. They found that a positive relationship existed between the employment training index and the way in which LD students exited high school. This indicated that those who had better employment training were more likely to graduate high school. Significant correlations also existed between absences (-.29), and parent participation (.21) and the way in which LD students exited high school. The only other significant finding in this study was that the verbal IQ significantly

discriminated ($p < .01$) between those who had attended college or technical school and those who had not.

One's ability to succeed in the work place is influenced by many different aspects. This study implies that one's employment stability is predicted by math ability, employment during high school, and parent participation. The status that one achieves is again predicted by math ability and parent participation.

Gerber et al. (1992) attempted to identify alterable patterns in employment success for highly successful adults with learning disabilities ($N = 71$). The primary weakness of the presentation was that empirical data were not reported. The researchers utilized retrospective interviews with an ex post facto research design to draw a number of different conclusions. The sampling consisted of individuals with an average age of 45 years (ranging 29 to 67 years old) who were recruited through national networking agencies for the learning disabled (i.e., National Network of Learning Disabled Adults, Orton Dyslexia Society, and the Association for Children with Learning Disabilities). They separated their sample into moderately and highly successful groups with income level, job classification, education level, prominence in one's field, and job satisfaction determining the level of success.

The researchers found no significant differences between the moderate and highly successful LD adults, however, they did find that a number of major themes developed. The researchers concluded that while all LD individuals in their study demonstrated considerable ability to achieve, those who were highly successful appeared to be more advanced and motivated than their moderate counterparts.

The model of success developed by Gerber et al. (1992) was based on the themes of control, internal decisions, and external manifestations. The researchers believed that control was the key to success for the LD adult. Control was defined as involving internal, conscious decision making as a means of taking ownership of one's life and using these decisions as an opportunity to externally manifest development and improved changes. The researchers found that LD adults spent their lives learning to take control, facilitating the changes needed to make success possible.

Through the use of control, LD adults were able to overcome the years of failure which many had experienced. Highly successful LD individuals tended to use control as a means of advancing themselves. The moderately successful group tended to use control as a means of self-protection. When the goal was not self-advancement, control was more frequently used to keep learning disabilities, or other weaknesses, hidden. Therefore, if a LD adult hoped to improve the chances of success, there was a need to become more comfortable with the disability so that energy could be spent improving as opposed to hiding a disability.

Gerber et al. (1992) believed that internal decisions made by successful LD adults involved a desire to succeed, an ability to set achievable goals, and confronting the learning disability to seek appropriate ways in which to increase the likelihood for success. A desire for success motivates LD individuals, increasing the likelihood for developing and setting appropriate, obtainable goals. Desire for success causes one to set increasingly more challenging goals improving the odds for success. Lastly, reframing was seen as a necessary part of internal decisions. Successful LD adults

reframed the experience of their learning disability so they could view it more positively and productively.

Through control and internal decisions action or external manifestations can be made, which completes the model. One external manifestation commonly seen was tenacity and willingness to do whatever it took to succeed. Another external manifestation of successful LD adults was a goodness of fit with the environment. This meant experiencing the environment as encouraging or supportive and believing it would utilize abilities and skills of the LD individual to the highest potential. A third external manifestation was the development of coping strategies, or the ability to develop alternative means and techniques of compensating for the disability. These strategies increase the potential for success. Lastly, the researchers listed the LD adults' ability to surround themselves with supportive people and develop programs to aid personal improvement and increase the potential for success.

Taking control over one's life, displaying the internal ability to deal with a LD, and taking the external strides to overcome one's weaknesses make a good combination for success. It is likely that while these patterns may be seen in successful LD adults, similar themes or traits may be seen in any group of successful individuals. One important aspect to keep in mind is that the acceptance of one's disability is important and is likely to help one adapt and develop coping strategies which maximize strengths and success potentials. However, there are other practical ways in which LD adults can seek assistance in their quest for success in the job force.

Accommodations

Jacobs and Hendricks (1992) studied the accommodation needs of LD adults (N = 371) requesting assistance in the job environment from the Job Accommodation Network. They explored the accommodations implemented in a variety of employment settings that had been proven helpful to LD individuals. They found that 72% of the requests for accommodation came from service industry jobs such as educational, health, or recreation related facilities. Another 12% of requests came from governmental agencies. Significantly more LD individuals were found to be seeking employment in service type jobs than other types of employment ($p < .001$).

A significant number of accommodations made for LD individuals were made so that the job could be retained ($p < .001$). However, this represented only 18% of the requests made for accommodation; 12% of the requests were made for improvements to the job environment. The study demonstrated a significant difference in the vocational status of the LD individuals when compared to the status of all the cases dealt with by the Network ($p < .001$) These results indicated that the type of accommodations requested by LD individuals were different than requests made by other disabled individuals. This may be due to the unique accommodations needed for learning disabilities or the added accommodations needed for physical disabilities.

Jacobs and Hendricks (1992) found that the most common functional limitation displayed by LD individuals was reading (71%) with spelling (18%) being the next most frequent. A considerable number of individuals (48%) reported multiple limitations. An interesting finding in this study was that

39% of the various requests for accommodations asked for the phone number of a professional or service organization that might help. A considerable number (41%) needed some sort of assisting device, and 32% of LD individuals were helped with some sort of assistive computer modifications. Computer software helped with the reading, and computer hardware enabled individuals to work more easily with the computer. In 19% of the cases help was obtained through the use of dictating machines. However, as mentioned earlier, a considerable amount of help was obtained through community services.

This study demonstrated that simple accommodations can be made to the working environment which help LD individuals adapt and become more successful in the work force. While personality traits and various motivating factors help LD individuals become successful, simple accommodations can increase the potential and ease with which LD individuals express their ability and potential for success.

Smith (1992) addressed the knowledge and perception LD adults ($\underline{N}$ = 353) had regarding rehabilitation services as well as investigating the factors which limit access to them. The sample consisted of self-identified LD adults who responded to a questionnaire published in a newsletter put out by The Learning Disability Association of America. The average age of the subjects was 30.8 years (range: 16 to 67 years). A large majority of the sample (75.3%) was employed. However, 30.1% were employed part-time and 24.6% of the sample considered themselves unemployed. This was much higher than the national unemployment average of 7%.

Because of the nature of the sampling, it is possible that the study was skewed and more representative of the unemployed than the employed

adult LD population. Generally, the unemployment rate for the adult LD population appears to be somewhat higher than the average unemployment rate. However, Smith (1992) shows an unemployment rate that is much higher. Unemployed LD individuals may have been more interested in filling out such a survey or may have had more time to do so than the employed LD population. The results of this study must be viewed with caution.

Smith (1992) found that 44.7% of the sample earned less than $7,000 a year which is less than earning minimum wage at 40 hours a week. Some of the sample (10.9%) earned over $35,000 a year. More people were in professional, technical, or managerial positions (32.3%) than were in service occupations (21.2%) or other types of jobs (21.2%). A large number had received their high school diploma (41.1%) with 27% receiving trade training, technical training, or an AA degree. A quarter of the sample (25.5%) had received a BA degree or some form of advanced training.

Describing the sample, the researcher found significantly more LD individuals employed full-time and not enrolled in school ($p < .001$) than employed and enrolled in school. The majority of LD individuals (51%) who were employed full-time had not enrolled in school while only 27% of those enrolled in school had full-time employment. The researcher also found significantly higher levels ($p < .001$) of part-time employment (39.5%) and unemployed (32.5%) for LD individuals not enrolled in school when compared to those in school (22% and 27.03%). This indicates that LD individuals not enrolled in school are more likely to be employed, and less employment was likely to be seen for LD individuals enrolled in school.

Smith (1992) separated the sample into three groups: (a) those who had not sought vocational rehabilitation (n = 154), (b) those who had vocational rehabilitation and had a bad experience (n = 90), and (c) those who had vocational rehabilitation and had a good experience (n = 97). In defense of the sampling, Smith (1992) explains that the findings may be a conservative estimate of the LD population as a whole because being a member of the Learning Disability Association of America might make them better informed of available vocational rehabilitation services. Of those who had not sought services, 49.1% had never thought about applying, while 34.5% did not know how to apply, and 23% did not know where the vocational rehabilitation office was located. This indicated that there is a large number of LD individuals who are eligible to seek vocational rehabilitation services and may not do so because of a lack of information.

These LD individuals tended to be older and more frequently employed on a full or part-time basis than those who had sought rehabilitation services. They tended to earn higher incomes with more than 25% earning more than $35,000 a year. It is possible that individuals in this group did not need to know about available services because they had no need for them. A large number (statistic not reported) had professional, managerial, or technical jobs with more people in this group having BA or advanced degrees than those in the groups who had sought services. While the researcher found an 18% unemployment rate for this group, less than one third earned below minimum wage.

LD individuals ineligible or dissatisfied with vocational rehabilitation services tended to have a higher rate of unemployment (40%), with the majority of them (57%) earning less than minimum wage. The majority of

these LD individuals never went beyond high school (51%). While there could be a number of reasons why this group was unsuccessful in vocational rehabilitation, several explanations are worth noting. The most common reason for dissatisfaction with rehabilitation services was that counselors were perceived as not understanding the difficulties faced by the LD individual. There was a general feeling that counselors had not been trained to deal with LDs and placed expectations that were too high or were belittling to LD individuals.

A higher rate of employment on a full and part-time basis (71%) was seen for LD individuals who were satisfied with vocational services than for those dissatisfied. The majority of this group received education beyond high school (59%), and there was only a 19% unemployment rate. Satisfaction with rehabilitation services was expressed due to reasons such as the counselor having positive expectations and the availability of adequate resources.

On the whole, individuals who had never applied for services knew significantly less about the rehabilitation process than those in either of the other groups ($p < .001$). This may be attributed to services not being available until after a career had already been established in an older sample. Significantly higher scores on knowledge of rehabilitation services were obtained by individuals enrolled in school ($p < .001$) than those not in school. Smith (1992) concluded that, in part, a lack of information may be due to high schools not informing students of vocational rehabilitation services and rehabilitation counselors not actively seeking clients. This article demonstrated that vocational rehabilitation resources are available, but are likely to be underutilized. Perceived success of services may depend,

in part, upon the relationship between the LD individual and the rehabilitation counselor.

Studies that address later adult adjustment in the work force appear to be lacking. The LD individual is likely to experience a variety of problems and adjustment is likely to be confounded by the disability. Because of these adjustments, it is likely to take longer for LD individuals to establish a career with which they are satisfied. Apparently, the exploration many LD individuals do during their years following graduation from high school can be beneficial as a career is determined. The middle aged adult and older populations of LD individuals are more difficult to identify and research than the post high school group.

The studies have shown LD individuals tend to have more difficulties adjusting to successful vocational positions than the general population. However, this does not dictate a life of difficulties and problems for the persistent and tenacious LD individual. With the limitations presented in obtaining an older population of LD individuals, it clearly would be beneficial to conduct longitudinal research in an effort to better determine the successes, struggles, and level of potential adjustment over longer periods of adulthood.

Social Adjustment

For adults with learning disabilities, there are many unique challenges. The most familiar and visible challenges are academic deficits and the handicap these present at the college or university level. They also present similar challenges in the work place, vocational, or rehabilitation setting. Many LDs involve some sort of language processing problem (i.e.,

receptive language deficits, expressive language deficits) which impacts an individual's general functioning. However, there is equal impact on the broader social functioning, and the effect is likely to be as great or greater than the more familiar problems.

Work and school frequently confront an individual's LD not only because of the nature of the disability but also because of the resources available. Most of these resources do not address social or interpersonal functioning. Due to the lifelong nature of the disability and because the most help is typically available only during the school years, the problem of inadequate social functioning continues long after graduation. While it is easily overlooked, appropriate social functioning is critical to the overall adjustment of the LD adult. While performing academically and vocationally are important to the survival of the LD individual, appropriate social functioning allows for a quality of life beyond survival.

A descriptive, self-report study done by Scuccimarra and Speece (1990) addressed the perception young LD adults ($\underline{N}$ = 65) held regarding their current social status. A random sampling was obtained from a list of LD individuals who had received special education services during the 1983-84 school year in a metropolitan school system. The researchers found that 96.9% of the LD young adult population were single with 100% of the men and 90.5% of the women being single. These findings were compared with the statistics obtained through the general census for individuals in the same age range. The demographics of the general population revealed that 58.8% of the women and 75.6% of the men were single, which is considerably less than in the LD sample. The researchers concluded that differences between

these groups may in part be due to the added social difficulties caused by a LD.

Activities in which LD individuals typically engaged were non-interactive or non-relational. All of the LD individuals (100%) stated that they frequently watched television, although this was not always done alone. Other non-interactive activities included movies (90.6%) and church services (63.1%). The majority of LD individuals answered in the negative to participation in hobbies (60.9%), sports (56.9%), recreational centers (54.7%), or hanging out with friends (58.5%). While a considerable number of LD individuals (76.9%) could name one special friend, 16.3% could name only that one friend, and 83.7% could only name two friends. Even though social limitations exist, 66.1% of the sample stated that they were very satisfied or satisfied with their social life. Over 29% expressed dissatisfaction or were very dissatisfied with their social life.

When the researchers asked LD individuals what was the best part of their social life, 28.1% replied that it was money, and only 21.9% said it was friends. Over 18% believed there was no best aspect of their social life, and a number of them said it was a boyfriend or girlfriend (15.6%). When asked how to improve their social life, 36.9% responded that they wanted more money, and 18.5% wanted to improve or obtain a relationship with a boyfriend or girlfriend. These findings display the tendency LD individuals have of increased difficulties with interpersonal relationships.

The researchers noted the difference between employed and unemployed individuals: More employed individuals (78.4%) reported being satisfied or very satisfied with their social life, while only 21.4% of unemployed persons expressed similar satisfaction. It appears LD

individuals who are more socially active experience more satisfaction. It is possible that employment forces LD individuals into social relationships which help to increase and improve interactions. It is also highly probable that the more socially skilled LD person competes better in the job market. The obvious concern is that while non-interactive activities tend to be favored by LD young adults, the time invested to improving social skills is limited. While appropriate social functioning could increase the overall level of adjustment and functioning, little effort is typically extended to remediate the problem.

Schumaker (1992) investigated the results of studies done at the University of Kansas' Institute for Research in Learning Disabilities (KU-IRLD) over a 14 year period. The majority of these studies addressed the remediation of social deficits in LD individuals. Schumaker summarized the 14-year programmatic line of research which examined the social deficits characteristic of LD adolescents and the instructional needs in providing school programming for the teaching of social skills.

The program involved teaching social skills strategies to LD students. Student performance in social situations was addressed and analyzed. They were made aware of the different aspects of each situation and which social strategies were best to use. Social strategies were modeled for the students who then worked to ensure memorization and understanding. Lastly, the students performed the different strategies in role-play situations. They continued to role-play until generalization to random situations was achieved at least 80% of the time. Social skill strategies included eye contact, serious voice tone, body posture, stating the person's name, identifying the

nature of the contact, making appropriate requests, obtaining feedback, and thanking the person.

Schumaker (1992) determined that LD adolescents were not social isolates even though they were less involved in formal social activities than their non-LD peers. LD students actually engaged in informal activities, although their involvement in planned activities and invitations to planned activities was limited. Schumaker demonstrated that individuals with learning disabilities were less skilled socially than non-LD peers. However, a sizable number of LD individuals were just as socially skilled as the non-LD population.

Schumaker (1992) concluded that the research demonstrates LD individuals are able to master social skills strategies. LD students learned and mastered social skills as competently as their peers, and also displayed the ability to generalized these skills to naturally occurring social situations. However, it was determined that LD students used fewer of the steps they had learned in social strategy and used the whole strategy infrequently. Schumaker summarized the research at KU-IRLD as demonstrating that teaching social skills strategies to LD individuals was possible. These skills can also generalize to other areas of social activity. Gaining the ability to utilize appropriate social skills took much programming and training, but it appeared that LD individuals receiving the training were able to overcome handicaps and attain better social adjustment.

Mellard and Hazel (1992) hypothesized that gaining social competency helps LD individuals make a successful transition into adulthood. The researchers explored the relationship between social competence and learning disabilities for community college students ($\underline{N}$ = 1,022). They

compared independent functioning and social responsibility in LD (n = 404) and non-LD (n = 618) community college students from a wide range of social, economic, and cultural backgrounds. The researchers had instructors of LD students develop an instrument which measured different adaptive behaviors across a number of behavioral domains associated with social competency. They explored 20 different domains through the use of a 433 item self-report instrument which was subdivided into six different forms. Validity and reliability statistics were not given.

The researchers selected 12 different domains to discuss because of their relevance to social competency in a LD population. LD individuals scored significantly different from their non-LD peers on a considerable number of questionnaire items. The researchers established an alpha level of $p < .10$ as their level of significance, stating that they had used a higher alpha level because of the exploratory nature of the study. The domains reported included language, pragmatics, humor, personal/social involvement, peer relations, helpfulness to others, applied academics, economics/money management, coping, time management, personal responsibility, and goal setting/organization.

The language domain addressed difficulties inherent to conversation and processing information. This domain included issues of understanding others, making oneself understood, and other communication limitations. LD community college students responded to significantly more items, indicating that complete communication, expressing the right words, and being understood tended to be more difficult than for non-LD students. Pragmatics was defined as being able to understand the expectations of others, understanding appropriate social behavior, being sensitive to critical

comments, and accurately interpreting comments made by others. The researchers found LD students responded to significantly more items addressing social pragmatics than did non-LD students. This indicated that LD students have more difficulty understanding appropriate social interactions in different settings.

LD students acknowledged difficulty using and understanding humor significantly more often than their non-LD peers. However, LD students endorsed fewer items with regard to personal-social involvement. The researchers suggested that LD students approached this domain defensively, hoping to present themselves as socially acceptable, and therefore fewer items were endorsed. Participating with friends in social events such as parties, going to movies, and free time were perceived as problematic by LD students. The domain addressing peer relationships, acceptance, and the ability to get along with friends yielded significant results, indicating that LD students have more difficulty integrating into social situations, even in such places as work and the community.

Mellard and Hazel (1992) reported that items regarding one's ability to be helpful to others were significantly different from non-disabled peers. LD students acknowledged difficulty being understood in their interactions with others asking for help as well as understanding the needs and concerns expressed by others. Of the items addressing functioning or coping in stressful situations at home, work, or college, LD students responded to significantly more problems than non-LD peers. This indicated that LD students acknowledged more problems coping with pressure, adjusting to changes, and accepting criticism. The researchers proposed that the LD

students not only had difficulty coping but also more difficulty dealing with stressful situations in socially appropriate ways.

The last five domains addressed the way in which individuals function in everyday life. The researchers found that LD students had difficulty transferring academic learning to everyday living situations, such as using math skills to compare prices. LD students also acknowledged difficulties with such things as budgeting, shopping, and accounting, which reflect the difficulties LD individuals may have applying cognitive skills to activities of daily living. LD students responded significantly more often to items acknowledging difficulties with time management and setting priorities than non-LD peers. The researchers concluded that utilizing cognitive knowledge as well as time management skills impacts areas of functioning important to success. Lastly, LD students acknowledged difficulty with problem solving at significantly greater levels than their non-LD peers. The researchers concluded that LD individuals have more difficulties than their peers recognizing a need for assistance, organizing tasks, prioritizing, and considering alternative options to problems.

While difficulties LD individuals display are most clearly seen in academics or the work place, problems with the social demands of life appear to be more complicated. Mellard and Hazel (1992) demonstrated that LD community college students acknowledge and display many social difficulties which are problematic to adult adjustment. Academic difficulties are frequently the primary focus for LD individuals throughout childhood. However, the overall impact of social difficulties warrants time and attention to increase the LD individual's overall level of functioning throughout life.

Jarvice and Justice (1992) studied the social sensitivity and self-concept of LD adolescents and young adults ($N = 90$). Subjects were asked to interpret the motives and feelings of individuals in a number of different affective social situations. Their responses were then scored for accuracy according to pre-established guidelines. The researchers expected social sensitivity to be lower for LD individuals when compared to non-LD peers and that older LD individuals would not develop social sensitivity at the same rate as non-LD peers. The researcher also hypothesized that self-concept might worsen with age for LD individuals.

The researchers used a multivariate analysis of variance (MANOVA) to compare the mean level of social sensitivity measured in four different social situations with grade and disability levels. They found that an individual's level of social sensitivity changed significantly with grade level ($p < .01$) and disability level ($p < .05$). However, the interaction effect between group and grade level was not significant. This indicated that non-LD populations demonstrated significantly more social sensitivity than LD populations, although both groups demonstrated significant increases as they aged.

The ability to demonstrate social sensitivity to happy situations was independently investigated and significantly greater sensitivity was demonstrated in such situations as individuals aged ($p < .05$). The researchers also found that non-LD individuals scored significantly higher on their ability to accurately interpret happy situations ($p < .05$) than did LD individuals. A post hoc test of significance was used to determine that college students displayed significantly higher levels of social sensitivity than

both the junior high and high school individuals ($p < .05$). This suggests that a certain degree of maturation takes place between high school and college.

Significant differences were again seen for age ($p < .05$) and group ($p < .05$) with regard to the social sensitivity demonstrated in angry situations. The researchers found a significant interaction effect, which demonstrated that LD individuals do not mature at the same rate as their non-LD peers with regard to their ability to accurately interpret situations involving anger ($p < .05$). This suggests that as age increases, non-LD individuals are more socially sensitive to situations involving anger than LD individuals. The researchers also determined that non-LD college students scored significantly higher than younger non-LD students ($p < .05$) with regard to sensitivity to anger. This suggests that significant maturation occurred between high school and college for non-LD individuals, however, similar maturation was not seen for LD individuals during this period.

Significant effects were found in situations involving anxiety with each group demonstrating increased levels of social sensitivity as they increased grades ($p < .05$). In a post hoc analysis, the researchers determined that college students for both groups (LD and non-LD) displayed higher levels of social sensitivity with regard to anxiety than did their younger peers. They also determined that LD students scored significantly lower than non-LD students ($p < .05$). This indicated that, with age, LD individuals gained an increased ability for appropriate social analysis of situations involving anxiety, however, their ability to do so remained significantly below non-LD individuals.

Significant differences in social sensitivity were again seen with regard to situations involving sadness. The only difference researchers found was

that scores significantly increased with grade ($p < .05$). This indicated that as individuals matured, there was an increased ability to be socially sensitive to situations involving sadness. The researchers found that this was true for college students ($p < .05$) in that both groups scored higher than the other two grade levels.

Self-concept was measured through the analysis of learning situations. The aspects of motivation, task orientation, problem-solving ability, and class membership were addressed by the Self-Concept As a Learner Scale. This measure is reported to have test-retest reliability of .61 for motivation, .73 for task orientation, .80 for problem solving, .66 for class membership, and .80 for the total score. The researchers found significant differences for grade and group ($p < .05$) with regard to self-concept in learning situations. Significant differences for group and grade ($p < .05$) were also found for each of the subscales using an independent univariate analysis. This indicated that significant differences of self-concept in learning situations were seen as grade level increased; differences were also apparent between the LD and non-LD group. The researchers determined that non-LD students scored higher than LD students; college students scored higher than either of the other two grade levels.

In a comparison across measures, the researchers determined that a significant correlation existed between social sensitivity and self-concept ($p < .01$). This correlation indicated that regardless of grade level and disability, the more one was socially sensitive, the higher one's self-concept.

Jarvice and Justice (1992) demonstrated that LD students exhibit social deficits and lower levels of self-concept in the comparison to non-LD peers. While both groups demonstrated regular developmental increases of social

sensitivity and self-concept in learning situations, LD individuals remained significantly behind the development of non-LD individuals. The researchers concluded that deficits in social sensitivity and self-concept lasted into adulthood for LD individuals. While the feeling of academic inferiority is understandable for the LD individual, the conclusions drawn by the researchers also indicated LD individuals tend to feel socially inferior.

These studies indicated that the impact of being LD is not limited to academic difficulties. Problems with social adjustment are also involved. The difficulties experienced by LD individuals stretch far beyond the classroom, into the school yard, work place, and home. Social interaction involves receptive and expressive language both of which are required for successful social interaction. Dealing with the social deficits caused by LDs is not the primary treatment focus during childhood, which means the problem continues into adulthood. The LD adult continues to be impacted by social problems but has fewer compensatory resources to draw upon. Therefore, the adjustment, coping and development in adulthood is a complicated process.

Emotional Adjustment

Having to face a disability is a difficult task for any individual. For the LD adult, there are likely to be many problems due to the unobtrusive nature of the disability. Learning disabilities are not visible, nor readily discernible during casual contact. For many LD adults, it is likely that there were delays in the diagnosis of the problem since most disabilities are diagnosed by the schools. The impact of a learning disability on childhood development involves being socially and emotionally different from peers as well as

experiencing difficulties in school performance. The LD adult has faced difficulties throughout life and is likely to have developed a number of coping mechanisms to deal with the disability. When one is faced with a lifetime of trials one is not left unaffected. The amount of stress placed on the emotional stability of a disabled individual is considerable, and without support, it is likely that dysfunctional coping patterns will develop.

Hoffmann et al. (1987) addressed the personal problems of young adults with learning disabilities. Frustration was the most frequently reported problem seen by LD adults. Of the LD adults sampled, 40% reported problems with frustration; 61% to 66% of service providers and consumers (parents of LD individuals) reported similar problems for the LD adults with whom they worked. The second most frequently reported problem was a lack of self-confidence. While 28% of LD adults acknowledged having difficulty with self-confidence, 49% of service providers and 57% of parents felt that a lack of self-confidence was a significant problem for LD adults. Other problems frequently acknowledged by LD adults were controlling emotions and temper (28% of the sample admitted to this problem), day dreaming (22%), apathy (23%), and depression (23%).

A considerable number reported seeking and receiving some sort of psychological help with regard to personal problems. Thirteen percent received therapy from a psychologist or psychiatrist, 9% received other types of counseling, and 5% had been hospitalized for a mental disturbance. It is difficult to know the significance of these numbers as they are not compared to a control group or the general public. However, it appears that personal problems decrease the adult adjustment of LD individuals

More specifically, 16% of the LD adults reported that personal problems negatively affected vocational adjustment. Almost one fourth of those surveyed (24%) expressed a need for help with personal problems. While the intensity and severity of the need for help is likely to vary, one can assume that everyone who needed help was not likely to admit it. Hoffmann et al. (1987) also explored dishonorable discharges from the military, histories of juvenile delinquency, and current probation. They determined only small percentages (12%, 18%, and 5%) of their population experienced these problems. While the researchers did not make a comparison with a control population, they did concluded that these percentages gave little support for a correlation between learning disabilities and juvenile delinquency.

Hoffmann et al. (1987) asked people who worked with LD adults what they saw as the three greatest needs for LD individuals. The researchers also explored problems presenting the greatest barrier to job success for LD individuals. Service and training needs appeared most frequently. Outside of these immediate needs, demonstrating a personal understanding of the disability as well as self-acceptance were seen as the greatest need for LD adults by service providers. Parents and advocates expressed self-acceptance as the greatest need outside of a job being properly suited for the disability. Self-confidence ranked as the single greatest barrier to job success by service providers, advocates, and parents. Other barriers to job success commonly mentioned were personal problems, poor social skills, lack of common sense, and poor judgment.

Hoffmann et al. (1987) indicated that LD individuals were likely to experience personal problems as a result of their disability, which may

interfere with other areas of their adult life. This would make adjustment to the different facets of adulthood difficult. Frustration, a lack of self-confidence, a lack of self-acceptance, apathy, depression, and day dreaming were all sources of personal problems. These problems may impact functioning throughout life: In early childhood personal difficulties may result in repeated academic failures; in adulthood personal problems may result in repeated occupational failures. Personal dysfunction does not develop suddenly, and LD individuals may struggle throughout childhood, adolescence, and adulthood with various problems. However, if appropriate support and understanding is available, it is possible to effectively deal with the stresses resulting from being disabled.

Faigel, Doak, Howard, and Sigel (1992) studied emotional disorders found in LD adolescents (N = 120) admitted to an inpatient psychiatric adolescent unit. Of the 177 admissions monitored by the hospital during the study, 120 met the researchers diagnostic criteria. The subjects were grouped according to one of four prominent learning disabilities (deficits in auditory memory and processing, visual memory and processing, receptive language, and expressive language). The researchers determined that there was no one psychiatric diagnosis that was predominant for LD adolescents. The most common disorders were depression, conduct type disorders (i.e., adjustment disorders mixed with conduct, impulse disorders), and oppositional defiant disorders.

Faigel et al. (1992) found that individuals diagnosed with behavior or conduct disorders were significantly more likely to demonstrate expressive language deficits ($p < .01$) than LD adolescents diagnosed with some sort of depression. Depressed subjects were significantly more likely than those

with other diagnoses to display visual memory and processing deficits ($p < .001$). Depressed individuals were five times more likely to display visual memory and processing deficits than individuals with behavior and conduct disorders. The researchers determined that auditory memory and processing deficits were common for both depressed and behaviorally disabled LD adolescents. Significant correlations were found with depression being tied to visual memory deficits ($r = .38$) and conduct or behavioral disorders being tied to expressive language deficits ($r = .41$).

The researchers determined that some connection exists between learning disabilities and emotional disorders found in adolescents admitted to an inpatient adolescent psychiatric unit. It appears that there are significant deficits in expressive language for adolescents with behavioral and conduct disorders. There is also an apparent connection to verbal memory and processing in adolescents experiencing depression. The researchers suggested that there is some differentiation between the type of learning disability manifested during adolescence and the emotional trauma experienced. It would be interesting to determine whether these trends continue into adulthood and if there is some connection between learning disabilities and other affective and behavioral disorders.

The life long nature of learning disabilities also affects the self-esteem and self-efficacy of LD individuals. Saracoglu, Minden, and Wilchesky (1989) studied university students ($N = 65$) for the relationship between learning disabilities and self-esteem or self-efficacy. The subjects were matched with non-learning disabled peers on sex, age, and college experience. The researchers investigated the social, personal-emotional, and academic demands of students and the role played by self-esteem and self-efficacy in

general coping and adaptive functioning. A college adaptation questionnaire was used that reported internal reliability ranging from .77 to .91. Self-efficacy was measured by a self-report self-efficacy scale with reported internal reliability ranging from .71 to .86. Self-esteem was measured by another self-report scale with internal reliability ranging from .75 to .81.

The researchers used a MANOVA to address the differences between groups. Dependent measures of personal-emotional adjustment, academic adjustment, social adjustment, general self-efficacy, self-esteem, and social self-efficacy were included. Social desirability was also analyzed as a dependent measure. Saracoglu et al. (1989) found significant overall difference between the LD and non-LD students ($p < .02$). The groups differed significantly on general self-esteem ($p < .02$), personal-emotional adjustment ($p < .02$), and academic adjustment ($p < .03$). LD students scored significantly poorer in each of these areas, which indicated that LD students in this study had lower levels of general self-esteem, personal-emotional adjustment, and academic adjustment than their non-LD peers.

No significant differences were noted between the groups with regard to gender. However, in general women reported lower levels of self-esteem than men ($p < .02$). Self-esteem and self-efficacy were positively correlated for both groups, which indicated that the higher one's self esteem was the higher one's self-efficacy. Self-esteem and self-efficacy also correlated positively with academic adjustment (LD: $p < .001$; non-LD: $p < .01$), social adjustment (LD: $p < .05$, non-LD: $p < .05$), and personal-emotional adjustment (LD = $p < .05$, non-LD = $p < .01$). These data indicated that positive adjustment and higher levels of self-esteem and self-efficacy appear to aid in the overall adjustment to university life.

Saracoglu et al. (1989) concluded that while many LD individuals are motivated, their primary difficulty is concerned with their attitude regarding a perceived level of competence. The researchers suggested that high levels of self-esteem and self-efficacy aid the LD student in coping with the stressors present in university life. LD individuals display lower levels of self-esteem and self-efficacy than other university students, and are likely to benefit from increased support and understanding. While the study did not demonstrate LD students to be poorly adjusted to the university setting, they did display lower levels of self-esteem and self-efficacy than non-LD peers. This phenomenon is likely to increase the needed adjustment and make functioning more difficult. However, the researchers concluded that occasionally LD students demonstrated high levels of adjustment due to successfully enduring difficulties not commonly experienced by others.

The LD student struggles more with self-esteem than is typical for university students. This process does not mean LD students are dysfunctional or cannot be well adjusted to university life. It does suggest that additional stressors caused by disabilities will require greater levels of adjustment. While many LD students have experienced failures throughout life, these findings suggest that the crucial variable is the individuals' decision to rise above their difficulties allowing them to increase their level of adjustment. It is possible that in the face of adversities, LD individuals can rise to the occasion.

Coping with the struggles presented by learning disabilities can influence the emotional adjustment of LD adults. Gregg, Hoy, King, Moreland, and Jagota (1992) compared LD adults across rehabilitation and university settings to identify affective variables needed to be considered for

transitional planning. Their study compared LD adults to non-LD college students and explored the relevance of using the Minnesota Multiphasic Personality Inventory, second edition (MMPI-2) in assessment and intervention of LD adults in rehabilitation and university settings. The MMPI-2 was administered to individuals from rehabilitation (n = 26) and university (n = 16) settings who met LD criteria established by the researchers. Those with reading abilities lower than the eighth grade level were administered the audio-taped version of the MMPI-2. Because of the unequal number of individuals in each group, the researcher adjusted to insure homogeneity of variance.

The researchers observed that the validity of the MMPI-2 for LD individuals in rehabilitation settings necessitated caution for interpretation because they were less tenacious than their non-disabled peers. Although validity levels for both populations were not above clinical levels, the rehabilitation population scored consistently higher on both the F (Infrequency) and F(B) scales. This indicated that the rehabilitation sample tended to give more random responses throughout the test. The researchers attributed the differences to attention, language, and reading difficulties which were considerably greater than usual for the rehabilitation population.

While very few of the interpretive scales demonstrated clinical significance, significant differences were seen between samples on several clinical scale variables. Rehabilitation LD individuals scored significantly higher ($p < .05$) than LD university students on the Schizophrenia (Sc, 8) and Mania (Ma, 9) Scales. The researchers reported two other scales also demonstrated significant group differences, but only identified Hysteria (Hy, 3; $p < .05$), with LD university students scoring significantly higher than LD

rehabilitation individuals. The researchers also found significant group differences on the content variables of depression, cynicism, antisocial practices, work interference, and negative treatment indicators. Rehabilitation LD individuals had obtained significantly higher T scores than LD university students on all five variables. Significant group differences on the traditional scale demonstrated that the university group scored significantly higher on the dominance (DO) variable, while the rehabilitation group scored significantly higher on the posttraumatic stress (Pk) variable.

Little effort was made by the researchers to interpret the differences between the groups. However, they did described the clinical profiles of both groups using scales demonstrating clinical relevance. For the rehabilitation population, Schizophrenia (Sc, 8) and Mania (Ma, 9) were the highest scores on the clinical profile. The researchers concluded that this configuration suggested rehabilitation populations were self-centered, with low self-confidence, fearing close relationships, socially withdrawn and isolated, hyperactive, and emotionally labile. LD individuals in the rehabilitation setting were likely to display high levels of withdrawal and isolation as well as difficulties with concentration and restlessness. The researchers concluded that counselors ought to explore the areas of depression, cynicism, antisocial practices, work interference, and negative treatment indicators with this population.

The differences noted on the traditional scales and the critically significant scores obtained on the posttraumatic stress scales indicated that LD individuals in rehabilitation settings deal with a great deal of stress and anxiety. Although not significant for the university group, the researchers

did observe moderate levels on posttraumatic stress variables. This led the researchers to conclude that over the course of an individual's lifetime, learning disabilities can be distressing beyond the normal range of human experiences even though they do not constitute a specific trauma. It was suggested that professionals working with LD individuals explore issues of long-term stress on ego development as well as the impact of anxiety on the development of cognitive and affective patterns.

The university group obtained their highest scores on Psychasthenia (Pt, 7) and near clinical significance on the Schizophrenia scale (Sc, 8), which demonstrated the likelihood of being under a considerable amount of stress. The interpretation of their elevated scales described LD university students as individuals harboring feelings of insecurity, inadequacy, inferiority, and social discomfort. These individuals tended to lack poise as well as be socially withdrawn and isolated. The significantly higher score obtained on the Hysteria (Hy, 3) scale by university students supports the tendency for a higher intellectual ability or at least reflects the difference in education between the groups. Scoring also suggested stronger levels of dominance for LD university students than LD individuals in rehabilitation settings.

The research indicated that LD individuals differ from the general population. Individuals were described as demonstrating self-doubt, a poor self-concept, depression, apathy, social isolation as well as a tendency for feelings of fear, obsessive thoughts, lack of self-confidence, and self-criticism. The researchers emphasized that LD individuals endure a great deal of short and long-term stress which increases the potential for anxiety. Professionals need to be aware of this stress and how it potentially affects the lives of LD individuals. Not only will it impact the clinical assessment of these

individuals, it also affects how professionals can best teach ways of coping and dealing with the stress and anxiety confronted in living with a learning disability. While the potential for adjustment difficulties is great, it is also important for those dealing with LD individuals to keep in mind that the potential for healthy adjustment and adaptive functioning also can be as great.

Conclusions

While it is clear that learning disabilities can be very handicapping for individuals as they deal with the common struggles in life, studies have shown there are a number of accommodations which can be helpful to the LD individual. The studies demonstrated that LD individuals must first acknowledge and confront their disability. As disabling as a learning disability can be, there is little that can be done if it is undiagnosed or unacknowledged. Once it is identified, confronting it openly and honestly allows the LD individual to obtain and respond to the available help.

The studies indicated that help is available for learning disabled individuals, although most of what is available requires effort on the part of LD individuals. Most available help requires accommodation to the environment. Numerous accommodations can be made within the academic environment. While LDs cause inherent limitations to academic performance, there are a number of ways in which accommodations can be made. The LD individual must deal with the biased and prejudicial attitudes of peers and professors. However, it is possible for them to cope successfully and complete postsecondary education. There are agencies that help the LD

individual as well as their employer make the necessary accommodations to function effectively in the work environment.

The areas which receive the least amount of attention and remediation are the social and emotional needs of the LD individual. Social and emotional functioning have a significant impact on academic and vocational functioning. While the greatest amount of help is available for academic and vocational performance, the influence of social and emotional functioning can negate the help received. Since an LD is a life long stressor, predictable emotional problems involving esteem and self-efficacy issues are inevitable when emotional issues are not addressed. Obtaining social and emotional help is frequently left to the individual. Studies on social functioning demonstrated that LD students can acquire social skills through training, but for the LD adult such programs are difficult to find. A concerted effort on the part of the LD individual must be made to recognize the disability as well as to seek the help needed to improve functioning.

Emotional and personal dysfunctioning of the LD adult is often revealed through the isolating behavior of these individuals. Because the disability often means substandard social skills, the LD adult has learned to cope with these deficits through isolation. This isolation combined with years of struggle and failure has a cumulative negative impact on the emotional well-being of the individual. While LDs do not cause exaggerated levels of pathology, it is likely that LD adults have reason to seek psychotherapeutic help.

While learning disabilities extend throughout one's lifetime, if one is able to acknowledge, confront, and accept the disability, the actual level of functioning can be normal. The research indicates that normal levels of

functioning can be attainable by the LD individual if the necessary help, accommodations, and services are obtained. While many adults have coped with learning disabilities without receiving services and have become very successful, there are undoubtedly many adults who would benefit from additional help and services.

It is suggested that future research focus on social and emotional areas of functioning for LD adults. Research also needs to increase the study on the adjustment of older LD adults. Clearly the greatest amount of research has been directed at young LD adults adjusting to academic and vocational areas of functioning. However, this is a frequent period of adjustment for many individuals. It is important that more investigation be done on the social and emotional areas of functioning as well as on adjustment of older LD individuals, who were not impacted by P.L. 94-142. Specifically, it would be interesting to explore the impact of social and emotional adjustment on the functioning in academic and vocational areas for young as well as older LD adults.

REFERENCES

Bursuck, W.D., Rose, E., Cowen, S., & Azmi Yahaya, M. (1989). Nation wide survey of postsecondary education services for students with learning disabilities. Exceptional Children, 56(3), 236-245.

Department of Education; Part II, 34 Code of Federal Regulations, parts 300 and 301. (1992, September). Federal Register, 57(189), pp. 44802, 44823.

Faigel, H.C., Doak, E., Howard, S.D., & Sigel, M.L. (1992). Emotional disorders in learning disabled adolescents. Child Psychiatry and Human Development, 23, 31-39.

Fourqurean, J.M., Meisgeier, C., Swank, P.R., & Williams, R.E. (1991). Correlates of postsecondary employment outcomes for young adults with learning disabilities. Journal of Learning Disabilities, 24(7), 400-405.

Gerber, P.J., Ginsberg, R., & Reiff, H.B. (1992). Identifying alterable patterns in employment success for highly successful adults with learning disabilities. Journal of Learning Disabilities, 25(8), 475-487.

Gerber, P.J., Schnieders, C.A., Paradise, L.V., Reiff, H.B., Ginsberg, R.J., & Popp, P.A. (1990). Persisting problems of adults with learning disabilities: Self-reported comparisons from their school-age and adult years. Journal of Learning Disabilities, 23(9), 570-573.

Gregg, N., Hoy, C., King, M., Moreland, C., & Jagota, M. (1992). The MMPI-2 profile of adults with learning disabilities in university and rehabilitation settings. Journal of Learning Disabilities, 25(6), 386-395.

Hallahan, D.P., & Kauffman, J.M. (1994). Exceptional children: Introduction to special education (6th ed.). Boston: Allyn and Bacon.

Haring, K.A., & Lovett, D.L. (1990). A follow-up study of special education graduates. Journal of Special Education, 23(4), 463-477.

Hoffmann, F.J., Sheldon, K.L., Minskoff, E.H., Sautter, S.W., Steidle, E.F., Baker, D.P., Bailey, M.B., & Echols, L.D. (1987). Needs of learning disabled adults. Journal of Learning Disabilities, 20(1), 43-52.

Houck, C.K., Asselin, S.B., Troutman, G.C., & Arrington, J.M. (1992). Students with learning disabilities in the university environment: A study of faculty and student perceptions. Journal of Learning Disabilities, 25(10), 678-684.

Jacobs, A.E., & Hendricks, D.J. (1992). Job accommodations for adults with learning disabilities: Brilliantly disguised opportunities. Learning Disabilities Quarterly, 15(4), 274-285.

Jarvis, P.A., & Justice, E.M. (1992). Social sensitivity in adolescence and adults with learning disabilities. Adolescence, 27(108), 977-988.

Malcolm, C.B., Polatajko, H.J., & Simons, J. (1990). A descriptive study of adults with suspected learning disabilities. Journal of Learning Disabilities, 23(8), 518-520.

McGuire, J.M., Hall, D., & Litt, A.V. (1991). A field-based study of the direct service needs of college students with learning disabilities. Journal of College Student Development, 32, 101-107.

Mellard, D.F., & Hazel, J.S. (1992). Social competencies as a pathway to successful life transitions. Learning Disabilities Quarterly, 15(4), 251-271.

Parks, A.W., Antonoff, S., Drake, C., Skiba, W.F., & Soberman, J. (1987). A survey of programs and services for learning disabled students in graduate and professional schools. Journal of Learning Disabilities, 20(3), 181-187.

Patton, J.R., & Polloway, E.A. (1992). Learning disabilities: The challenges of adulthood. Journal of Learning Disabilities, 25(7), 410-447.

Saracoglu, B., Minden, H., & Wilchesky, M. (1989). The adjustment of students with learning disabilities to university and its relationship to self-esteem and self-efficacy. Journal of Learning Disabilities, 22(9), 590-592.

Schumaker, J.B. (1992). Social performance of individuals with learning disabilities: Through the looking glass of KU-IRLD research. School Psychology Review, 21(3), 387-399.

Scuccimarra, D.J., & Speece, D.L. (1990). Employment outcomes and social integration of students with mild handicaps: The quality of life two years after high school. Journal of Learning Disabilities, 23(4), 213-219.

Siegel, S., & Gaylord-Ross, R. (1991). Factors associated with employment success among youths with learning disabilities. Journal of Learning Disabilities, 24(1), 40-47.

Sitlington, P.L., & Frank, A.R. (1990). Are adolescents with learning disabilities sucessfully crossing the bridge into adult life? Learning Disabilities Quarterly, 13, 97-111.

Sitlington, P.L., Frank, A.R., & Carson, R. (1992). Adult adjustment among high school graduates with mild disabilities. Exceptional Children, 59(3), 221-233.

Smith, J.O. (1992). Falling through the cracks: Rehabilitation services for adults with learning disabilities. Exceptional Children, 58(5), 451-460.

Vogel, S.A., & Adelman, P.B. (1992). The success of college students with learning disabilities: Factors related to educational attainment. Journal of Learning Disabilities, 25(7), 430-441.

White, W.J. (1992). The postschool adjustment of persons with learning disabilities: Current status and future projections. Journal of Learning Disabilities, 25(7), 448-456.

VITA

NAME:

James E. Telander

EDUCATION:

Rosemead School of Psychology Clinical Psychology	Psy.D.	(Cand.)
Rosemead School of Psychology Clinical Psychology	M.A.	1989
Bethel College Psychology	B.A.	1984

INTERNSHIP:

Des Moines Child and Adolescent Guidance Center Des Moines, Iowa	1992 - 1993

PRACTICA:

CPC Brea Canyon Hospital Inpatient Program	1991 - 1992
Biola Counseling Center Outpatient Program	1989 - 1991
California Family Life Center School Practicum	1988 - 1989

EMPLOYMENT:

Psychological Consulting Group Psychological Assistant	1990 - present
California Family Life Center Caseworker/Counselor	1988 - 1990